

The Department of Mathematics

2020–21–B term

Course Name Introduction to Complex Analysis

Course Number 201.1.0071

Course web page

<https://www.math.bgu.ac.il/en/teaching/spring2021/courses/introduction-to-complex-analysis>

Lecturer Prof. Ilan Hirshberg, <ilan@bgu.ac.il>, Office 203

Office Hours <https://www.math.bgu.ac.il/en/teaching/hours>

Abstract

Requirements and grading¹

Course topics

1. Complex numbers, open sets in the plane.
2. Continuity of functions of a complex variable
3. Derivative at a point and Cauchy–Riemann equations
4. Analytic functions; example of power series and elementary functions
5. Cauchy’s theorem and applications.
6. Cauchy’s formula and power series expansions
7. Morera’s theorem
8. Existence of a logarithm and of a square root
9. Liouville’s theorem and the fundamental theorem of algebra
10. Laurent series and classification of isolated singular points. The residue theorem

¹Information may change during the first two weeks of the term. Please consult the webpage for updates



11. Harmonic functions
12. Schwarz' lemma and applications
13. Some ideas on conformal mappings
14. Computations of integrals